

IN THE CLAIMS:

Please amend the claims as follows.

1. (Currently Amended) A method, comprising:
acquiring, or retrieving from storage, one or more acceleration wavefield traces;
applying a gain recover to the acceleration wavefield traces;
applying a normal moveout correction to the gain recovered acceleration wavefield traces;
muting the normal moveout corrected acceleration wavefield traces;
stacking the muted acceleration wavefield traces; and
applying, using a processor, a time migration to the stacked acceleration wavefield traces.
- 2-9. (Cancelled)
10. (Currently Amended) An apparatus, comprising:
an input interface for receiving one or more acceleration wavefield traces;
a data processor; and
memory comprising program instructions executable by the processor to:
acquire the acceleration wavefield traces;
apply a gain recover to the acceleration wavefield traces;
apply a normal moveout correction to the gain recovered acceleration wavefield traces;
mute the normal moveout corrected acceleration wavefield traces;
stack the muted acceleration wavefield traces; and
apply a time migration to the stacked acceleration wavefield traces.
11. (Cancelled)
12. (Previously Presented) A seismic surveying arrangement comprising:

a seismic source for emitting seismic energy;
a seismic receiver for acquiring seismic data representative of the acceleration wavefield traces, the seismic receiver being spaced from the seismic source; and
an apparatus as claimed in claim 10 for processing the acceleration wavefield traces acquired by the receiver.

13. (Original) A seismic surveying arrangement as claimed in claim 12 wherein the seismic source and the receiver are each disposed at or on the earth's surface.

14. (Original) A seismic surveying arrangement as claimed in claim 12 wherein the seismic source is disposed at or on the earth's surface and the receiver is disposed within a borehole.

15. (Original) A seismic surveying arrangement as claimed in claim 12 wherein the seismic source is disposed in a water column and the receiver is located at the base of the water column.

16. (Original) A seismic surveying arrangement as claimed in claim 12 wherein the seismic source is disposed in a water column and the receiver is disposed within a borehole.

17-20. (Cancelled)

21. (Previously Presented) The method of claim 1, further comprising removing an effect of a signature of the source used to acquire the acceleration wavefield traces.

22. (Currently Amended) The method of claim 1, further comprising removing coherent noise from the gain recovered acceleration wavefield traces.

23. (Currently Amended) The method of claim 1, further comprising applying a demultiple algorithm to the gain recovered acceleration wavefield traces to remove

events that involve multiple passes through a water column in which a receiver used to acquire the acceleration wavefield traces is disposed.

24. (Currently Amended) The method of claim 1, further comprising applying a trace equalization algorithm to the muted acceleration wavefield traces.

25. (Currently Amended) The method of claim 1, further comprising applying a pre-stack deconvolution algorithm to the gain recovered acceleration wavefield traces to attenuate short period of reverberations.

26. (Currently Amended) The method of claim 1, further comprising applying a post-stack deconvolution algorithm to the stacked acceleration wavefield traces to whiten a signal spectrum.

27. (Currently Amended) The method of claim 26, further comprising applying a time-varying bandpass filter to the stacked acceleration wavefield traces.

28. (Previously Presented) The method of claim 1, further comprising equalizing amplitudes of the stacked acceleration wavefield traces.

29. (Currently Amended) A method, comprising:
acquiring, or retrieving from storage, seismic data representative of only acceleration wavefield traces;
applying a gain recover to the seismic data;
applying a normal moveout correction to the gain recovered seismic data;
muting the normal moveout corrected seismic data;
stacking the muted seismic data; and
applying, using a processor, a time migration to the stacked seismic data acceleration-wavefield-traces.